

Section B - Supplies or Services and Prices

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001		1	Lot		

TECHNICAL SUPPORT AND SERVICES

FFP

OBJECTIVE:

1. CONTRACTOR SHALL PROVIDE EXPERTISE IN THERMOANALYTICAL AND SPECTROSCOPIC INVESTIGATIONS OF ELECTROCHEMICAL MATERIALS USED IN BATTERIES, FUEL CELLS, AND SUPER CAPACITORS FOR NAVY AND MARINE APPLICATIONS. SPECIFICALLY EXPERTISE IN THERMAL ANALYSIS AND FOURIER TRANSFORM INFARED (FTIR) SPECTROSCOPY TO INVESTIGATE THE PHYSICAL AND CHEMICAL PROPERTIES OF SOURCES REFERENCED ABOVE.

REQUIREMENTS:

2. CONTRACTOR SHOULD HAVE AN ADVANCED DEGREE (PH.D. PREFERRED) IN PHYSICAL SCIENCES, E.G. CHEMISTRY, PHYSICS OR MATERIALS SCIENCE WITH AN INTIMATE KNOWLEDGE OF THE MAJOR THERMAL ANALYSIS TECHNIQUES AND MOLECULAR SPECTROSCOPY, INCLUDING:

- A. THERMOGRAVIMETRIC ANALYSIS (TGA)
- B. DIFFERENTIAL THERMAL ANALYSIS (DTA)
- C. DIFFERENTIAL SCANNING CALORIMETRY (DSC)
- D. MODULATED DSC (MDSC)
- E. THERMOMECHANICAL ANALYSIS (TMA)
- F. DYNAMIC MECHANICAL ANALYSIS (DMA)
- G. DIELECTRIC ANALYSIS (DEA)
- H. FOURIER TRANSFORM INFARED SPECTROSCOPY (FTIR)

3. THE CONTRACTOR MUST HAVE EXTENSIVE EXPERIENCE IN RESEARCH AND DEVELOPMENT OF ADVANCED ELECTROCHEMICAL MATERIALS (ANODES, CATHODES, ELECTROLYTES AND SEPARATORS) IN THE FOLLOWING ELECTROCHEMICAL SYSTEMS:

- A. LITHIUM/CARBON MONOFLUORIDE
- B. LITHIUM/VANADIUM PENTOXIDE
- C. LITHIUM/MANGANOSPINE
- D. ZINC/SILVER OXIDE PRIMARY RESERVE BATTERIES.

THE CONTRACTOR SHALL HAVE EXPERIENCE APPLYING THE MAJOR THERMAL ANALYSIS TECHNIQUES DESCRIBED IN "A" TO THE FOLLOWING: COMPOSITIONAL ANALYSIS, STOICHIOMETRY, PURITY, THERMAL STABILITY, DECOMPOSITION KINETICS, HEAT OF FORMATION, HEAD OF REACTION, HEAT CAPAICITY, GLASS TRANSACTION, THERMAL CONDUCTIVITY, ELECTRICAL CONDUCTIVITY, PERMITTIVITY, CONDUCTANCE AND VISCOELEASTIC BEHAVIOR. IN PARTICULAR, EXPERIENCE IN THE SEPARATION OF REVERSING AND NON-RESERVING TRANSITIONS IN ELECTROCHEMICAL MATERIALS BY MDSC IS REQUIRED.

4. CONTRACTOR SHALL HAVE EXTENSIVE EXPERIENCE IN SOLVING SPECIFIC ELECTROCHEMICAL MATERIALS PROBLEMS AS DEMONSTRATED BY PUBLICATIONS IN REFERENCED JOURNALS AND BY PRESENTATIONS AT PROFESSIONAL SCIENTIFIC SOCIETY MEETINGS.

5. THE CONTRACTOR MUST POSSESS AND MAINTAIN A SECRET LEVEL CLEARANCE.

SCOPE OF WORK:

6. THE CONTRACTOR WILL INVESTIGATE THE THERMOPHYSICAL AND THERMOCHEMICAL PROPERTIES OF MATERIALS INCLUDING, BUT NOT LIMITED TO:

- A. NANOCRYSTALLINE ALLOYS
- B. ACTIVATED CARBON ELECTRODES
- C. ELECTROLYTES
- D. LITHIATED TRANSITION METAL OXIDE CATHODES
- E. THERMALLY STABLE SILVER OXIDE CATHODE MATERIALS
- F. CARBON MONOFLUORIDE CATHODE MATERIAL
- G. IRON DISULFIDE CATHODE MATERIAL (PYRITE)
- H. VANADIUM PENTOXIDE AEROGEL
- I. AMBIGEL CATHODE MATERIALS
- J. MANGANESE DIOXIDE CATHODE MATERIAL.

THESE MATERIALS ARE USED IN THE ELECTROCHEMICAL POWER SOURCES SUCH AS LITHIUM PRIMARY BATTERIES, LITHIUM-ION RECHARGEABLE BATTERIES, SILVER OXIDE RESERVE BATTERIES, AND SYMMETRIC AND ASYMMETRIC ULTRACAPACITORS. THE CONTRACTOR WILL INTERPRET THE THERMAL DATA AND WRITE COMPREHENSIVE REPORTS CORRELATING THE EXPERIMENTAL RESULTS WITH THE PREDICTED BEHAVIOR OF THE MATERIALS UNDER ACTUAL MILITARY USE CONDITIONS.

7. PLACE OF PERFORMANCE: NAVAL SURFACE WARFARE CENTER - CARDEROCK (NSWCCD) LOCATED IN BETHESDA, MD 20817. NSWCCD PERSONNEL SHALL PROVIDE WORKSPACE AND NECESSARY RESOURCES AND MATERIALS TO THE CONTRACTOR AS AVAILABLE.

9. THE NSWCCD PERSONNEL SHALL PROVIDE SCIENTIFIC INSTRUMENTATION AS DESCRIBED IN A - H.

PERFORMANCE & DELIVERY:

10. PERIOD OF PERFORMANCE: ALL TECHNICAL WORK SHALL BE COMPLETED NO LATER THAN 12 MONTHS FROM THE DATE OF AWARD.

11. LABORATORY NOTEBOOKS, CONTINUING INFORMATION PERFORMED DURING THIS PROJECT SHALL REMAIN THE PROPERTY OF THE NSWCCD. THE LABORATORY NOTEBOOK SHALL CONTAIN AN ACCURATE AND DETAILED ACCOUNT OF THE INVESTIGATION SO THAT A PUBLISHED PAPER IN A JOURNAL FOR CONFERENCE IS ACHIEVABLE. ALL NOTES SHALL BE CLEARLY WRITTEN AND UPDATED DAILY. GRAPHS AND DATA REDUCTION SHALL BE PLACED IN THE LABORATORY NOTEBOOK.

12. THE CONTRACTOR SHALL PROVIDE TECHNICAL INFORMATION TO THE PROJECT TECHNICAL LEAD IN THE FORM OF SCIENTIFIC REPORTS, EXCEL SPREADSHEETS, GRAPHS, OR POWER POINT PRESENTATIONS.

FOB: Destination
PURCHASE REQUEST NUMBER: 61876286

NET AMT

Section E - Inspection and Acceptance

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
0001	N/A	N/A	N/A	Government

Section F - Deliveries or Performance

DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
0001	31-OCT-2007	1	N/A FOB: Destination	

Section G - Contract Administration Data

Section I - Contract Clauses

CLAUSES INCORPORATED BY REFERENCE

52.249-8 Default (Fixed-Price Supply & Service) APR 1984

CLAUSES INCORPORATED BY FULL TEXT

52.213-4 Terms and Conditions--Simplified Acquisitions (Other Than Commercial Items) (FEB 2006)

(a) The Contractor shall comply with the following Federal Acquisition Regulation (FAR) and Defense Federal Acquisition Regulation Supplement (DFARS) clauses that are incorporated by reference:

(1) The clauses listed below implement provisions of law or Executive order:

- (i) 52.222-3, Convict Labor (June 2003) (E.O. 11755).
- (ii) 52.222-21, Prohibition of Segregated Facilities (Feb 1999) (E.O. 11246).
- (iii) 52.222-26, Equal Opportunity (Apr 2002) (E.O. 11246).
- (iv) 52.225-13, Restrictions on Certain Foreign Purchases (Feb 2006) (E.o.s, proclamations, and statutes administered by the Office of Foreign Assets Control of the Department of the Treasury).
- (v) 52.233-3, Protest After Award (Aug 1996) (31 U.S.C. 3553).
- (vi) 52.233-4, Applicable Law for Breach of Contract Claim (Oct 2004) (Pub. L. 108-77, 108-78)

(2) Listed below are additional clauses that apply:

- (i) 252.204-7003, Control of Government Personnel Work Product (Apr 1992)
- (ii) 52.232-1, Payments (Apr 1984).
- (iii) 52.232-8, Discounts for Prompt Payment (Feb 2002).
- (iv) 52.232-11, Extras (Apr 1984).
- (v) 52.232-25, Prompt Payment (Oct 2003).
- (vi) 252.232-7010 Levies on Contract Payments (Sep 2005)
- (vii) 52.233-1, Disputes (Jul 2002).
- (viii) 252.243-7001 Pricing of Contract Modifications (Dec 1991)
- (ix) 52.244-6, Subcontracts for Commercial Items (Feb 2006).
- (x) 52.253-1, Computer Generated Forms (Jan 1991).

(b) The Contractor shall comply with the following FAR and DFARS clauses, incorporated by reference, unless the circumstances do not apply:

(1) The clauses listed below implement provisions of law or Executive order:

- (i) 52.222-19, Child Labor--Cooperation with Authorities and Remedies (Jan 2006) (E.O. 13126) (Applies to contracts for supplies exceeding the micro-purchase threshold.)
- (ii) 52.222-20, Walsh-Healey Public Contracts Act (Dec 1996) (41 U.S.C. 35-45) (Applies to supply contracts over \$10,000 in the United States, Puerto Rico, or the U.S. Virgin Islands).
- (iii) 52.222-35, Equal Opportunity for Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans (Dec 2001) (38 U.S.C. 4212) (Applies to contracts of \$25,000 or more).
- (iv) 52.222-36, Affirmative Action for Workers with Disabilities (June 1998) (29 U.S.C. 793) (Applies to contracts over \$10,000, unless the work is to be performed outside the United States by employees recruited outside the United States.) (For purposes of this clause, United States includes the 50 States, the District of Columbia, Puerto Rico, the Northern Mariana Islands, American Samoa, Guam, the U.S. Virgin Islands, and Wake Island.)
- (v) 52.222-37, Employment Reports on Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans (Dec 2001) (38 U.S.C. 4212) (Applies to contracts of \$25,000 or more).
- (vi) 52.222-41, Service Contract Act of 1965, As Amended (Jul 2005) (41 U.S.C. 351, et seq.) (Applies to service contracts over \$2,500 that are subject to the Service Contract Act and will be performed in the United States, District of Columbia, Puerto Rico, the Northern Mariana Islands, American Samoa, Guam, the U.S. Virgin Islands, Johnston Island, Wake Island, or the outer continental shelf lands).

(vii) 52.223-5, Pollution Prevention and Right-to-Know Information (Aug 2003) (E.O. 13148) (Applies to services performed on Federal facilities).

(viii) 252.225-7001, Buy American Act and Balance of Payments Program (Jun 2005) (Applies to all contracts for supplies unless an exception is authorized by DFARS 252.1101(2)(i) through (iv).

(ix) 252.225-7013, Duty-Free Entry (Jun 2006) (Applies to all contracts for supplies except those supplies that will not enter the customs territory of the United States).

(x) 52.232-33, Payment by Electronic Funds Transfer--Central Contractor Registration (Oct 2003) (Applies when the payment will be made by electronic funds transfer (EFT) and the payment office uses the Central Contractor Registration (CCR) database as its source of EFT information.)

(xi) 52.232-34, Payment by Electronic Funds Transfer--Other than Central Contractor Registration (May 1999) (Applies when the payment will be made by EFT and the payment office does not use the CCR database as its source of EFT information.)

(xii) 252.247-7023, Transportation of Supplies by Sea (May 2002) Alternate III (May 2002) (Applies when transporting any supplies by sea under this contract.)

(2) Listed below are additional clauses that may apply:

(i) 52.204-7, Central Contractor Registration (Jul 2006) (Applies to all contracts unless an exception is authorized by FAR 4.1102(a).)

(ii) 52.204-7004, Alternate A (Nov 2003) (Applies if FAR 52.204-7 is applicable.)

(iii) 52.209-6, Protecting the Government's Interest When Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment (JAN 2005) (Applies to contracts over \$25,000).

(iv) 52.211-5 Material Requirements (Aug 2000) (Applies to contracts for supplies that are not commercial items).

(v) 52.211-17, Delivery of Excess Quantities (Sept 1989) (Applies to fixed-price supplies).

(vi) 252.225-7002, Qualifying Country Sources as Subcontractors (Apr 2003) (Applies if the contract is subject to the DFARS clause 252.225-7001, Buy American Act and Balance of Payments Program (see (b)(1)(viii) above)).

(vii) 52.243-1, Changes--Fixed Price (Aug 1987) (Applies to fixed-price contracts for supplies).

(viii) 52.243-1, Changes--Fixed Price (Aug 1987) Alternate I (Apr 1984) (Applies to fixed price contracts for services, other than architect-engineer or other professional services, and no supplies are to be furnished).

(ix) 52.243-1, Changes--Fixed Price (Aug 1987) Alternate II (Apr 1984) (Applies to fixed price contracts for services (other than architect-engineer services, transportation, or research and development) and supplies are to be furnished).

(x) 52.243-1, Changes--Fixed Price (Aug 1987) Alternate V (Apr 1984) (Applies to fixed price contracts for research and development).

(xi) 52.247-29, F.o.b. Origin (Feb 2006) (Applies to supplies if delivery is f.o.b. origin).

(xii) 52.247-34, F.o.b. Destination (Nov 1991) (Applies to supplies if delivery is f.o.b. destination).

(xiii) 52.222-42, Statement of Equivalent Rates for Federal Hires (May 1989) (Applies if the contract amount is expected to be over \$2,500 and the contract is subject to the clause 52.222-41, "Service Contract Act of 1965, As Amended" (see (b)(1)(vi) above)). In compliance with the Service Contract Act of 1965, as amended, and the regulations of the Secretary of Labor (29 CFR Part 4), this clause identifies the classes of service employees expected to be employed under the contract and states the wages and fringe benefits payable to each if they were employed by the contracting agency subject to the provisions of 5 U.S.C. 5341 or 5332.

This Statement is for Information Only:

It is not a Wage Determination

Employee Class	Monetary Wage--Fringe Benefits
_____	_____
_____	_____
_____	_____
_____	_____

(xiv) 52.246-11 Higher-Level Contract Quality Requirement (Feb 1999) (Applies to contracts when the contracting officer finds it is in the Government's interest to require that higher-level quality standards be maintained and such standards are selected and identified in the clause). The Contractor shall comply with the higher-level quality

standard selected below. [If more than one standard is listed, the offeror shall indicate its selection by checking the appropriate block.]

Title	Number	Date	Tailoring
* _____	_____	_____	_____
* _____	_____	_____	_____
* _____	_____	_____	_____
* _____	_____	_____	_____

[Contracting Officer insert the title, number (if any), date, and tailoring (if any) of the higher-level quality standards.]

(c) FAR 52.252-2, Clauses Incorporated by Reference (Feb 1998). This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

FAR clauses - <http://www.arnet.gov/far/>

DFARS clauses - <http://www.acq.osd.mil/dp/dars/dfars.html>

(d) Inspection/Acceptance. The Contractor shall tender for acceptance only those items that conform to the requirements of this contract. The Government reserves the right to inspect or test any supplies or services that have been tendered for acceptance. The Government may require repair or replacement of nonconforming supplies or re-performance of nonconforming services at no increase in contract price. The Government must exercise its post-acceptance rights--

- (1) Within a reasonable period of time after the defect was discovered or should have been discovered; and
- (2) Before any substantial change occurs in the condition of the item, unless the change is due to the defect in the item.

(e) Excusable delays. The Contractor shall be liable for default unless nonperformance is caused by an occurrence beyond the reasonable control of the Contractor and without its fault or negligence, such as acts of God or the public enemy, acts of the Government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, unusually severe weather, and delays of common carriers. The Contractor shall notify the Contracting Officer in writing as soon as it is reasonably possible after the commencement of any excusable delay, setting forth the full particulars in connection therewith, shall remedy such occurrence with all reasonable dispatch, and shall promptly give written notice to the Contracting Officer of the cessation of such occurrence.

(f) Termination for the Government's convenience. The Government reserves the right to terminate this contract, or any part hereof, for its sole convenience. In the event of such termination, the Contractor shall immediately stop all work hereunder and shall immediately cause any and all of its suppliers and subcontractors to cease work. Subject to the terms of this contract, the Contractor shall be paid a percentage of the contract price reflecting the percentage of the work performed prior to the notice of termination, plus reasonable charges that the Contractor can demonstrate to the satisfaction of the Government, using its standard record keeping system, have resulted from the termination. The Contractor shall not be required to comply with the cost accounting standards or contract cost principles for this purpose. This paragraph does not give the Government any right to audit the Contractor's records. The Contractor shall not be paid for any work performed or costs incurred that reasonably could have been avoided.

(g) Termination for cause. The Government may terminate this contract, or any part hereof, for cause in the event of any default by the Contractor, or if the Contractor fails to comply with any contract terms and conditions, or fails to provide the Government, upon request, with adequate assurances of future performance. In the event of termination for cause, the Government shall not be liable to the Contractor for any amount for supplies or services not accepted, and the Contractor shall be liable to the Government for any and all rights and remedies provided by law. If it is determined that the Government improperly terminated this contract for default, such termination shall be deemed a termination for convenience.

(h) Warranty. The Contractor warrants and implies that the items delivered hereunder are merchantable and fit for use for the particular purpose described in this contract.

(End of clause)

Your quotation must include the following information:

Price list number and date

or

Cost breakdown by direct labor (list categories, hours and pay rates). In addition to the direct rates, provide the applicable indirect information (G&A), overhead, facilities capital cost of money (FCCM) and profit.

or

Applicable General Services Administration (GSA) contract number.

If unable to quote FOB, Destination, please complete the following:

FOB Point _____

Estimated Shipping Charge _____

Business size:

Large _____ Small _____ Nonprofit _____

Cage Code _____

Tax Identification Number (TIN) _____

DUNS _____

ELIGIBILITY REQUIREMENTS

All contractors and individuals doing business with the Federal Government must be registered at the Contractor Central Registration Database located at: <http://www.ccr.gov/>

ELECTRONIC DISTRIBUTION OF CONTRACT DOCUMENTS

(a) The DoD Electronic Document Access (EDA) provides World Wide Web access to documents used to support the procurement, contract administration, bill paying, and accounting processes. EDA is being used by the Naval Surface Warfare Center, Carderock Division to electronically distribute all contract award and contract modification documents, including task and delivery orders. The contractor will be sent a notification email when a contractual document has been uploaded for distribution. The contractor will be required to register as a vendor on the EDA web site (<http://eda.ogden.disa.mil>) in order to view/download their company's contractual documents. The files

posted are in .pdf format and may be accessed using Adobe Acrobat Reader. Adobe Acrobat Reader is a free software that may be downloaded at <http://www.adobe.com/products/acrobat/readstep.html>.

(b) Offerors must provide the following information that will be used to make electronic distribution for any resultant contract.

Name of Point of Contact _____

Phone Number for Point of Contact _____

E-mail Address for Receipt of Electronic Distribution _____

USE OF THE GOVERNMENT-WIDE COMMERCIAL PURCHASE CARD

Will you accept the Government-wide Commercial Purchase Card as a method of purchasing supplies and/or services.

_____ Yes _____ No

Will you accept the Government wide Commercial Purchase Card as a method of payment for your invoice.

_____ Yes _____ No

DUTY FREE ENTRY

Will any materials being shipped to the Government require a duty-free entry certificate for foreign supplies.

_____ Yes _____ No

If yes, please include dollar amount \$ _____

Note: The following provision 52.204-8 applies to this solicitation only when the solicitation includes the clause 52.213-4, Terms and Conditions—Simplified Acquisitions (Other Than Commercial Items)

52.204-8 Annual Representations and Certifications (Jan 2005)

(a)(1) If the clause at 52.204-7, Central Contractor Registration, is included in this solicitation, paragraph (b) of this provision applies.

(2) If the clause at 52.204-7 is not included in this solicitation, and the offeror is currently registered in CCR, and has completed the ORCA electronically, the offeror may choose to use paragraph (b) instead of completing the corresponding individual representations and certifications in the solicitation. The offeror shall indicate which option applies by checking one of the following boxes:

☐ (i) Paragraph (b) applies.

☐ (ii) Paragraph (b) does not apply and the offeror has completed the individual representations and certifications in the solicitation.

(b) The offeror has completed the annual representations and certifications electronically via the Online Representations and Certifications Application (ORCA) website at <http://orca.bpn.gov>. After reviewing the ORCA

database information, the offeror verifies by submission of the offer that the representations and certifications currently posted electronically have been entered or updated within the last 12 months, are current, accurate, complete, and applicable to this solicitation (including the business size standard applicable to the NAICS code referenced for this solicitation), as of the date of this offer and are incorporated in this offer by reference (see FAR 4.1201); except for the changes identified below [offeror to insert changes, identifying change by clause number, title, date]. These amended representation(s) and/or certification(s) are also incorporated in this offer and are current, accurate, and complete as of the date of this offer.

FAR Clause #	Title	Date	Change
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Any changes provided by the offeror are applicable to this solicitation only, and do not result in an update to the representations and certifications posted on ORCA.

(End of provision)